Advances in Environmental Biology 2014 vol.8 N13, pages 117-121

Comparative analysis of the effectiveness of oil-contaminated soil remediation by microbial isolates of Pseudomonas aeruginosa and commercial preparation "Devoroil"

Akhmetzyanova L., Nikolaevich K., Selivanovskaya S.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2014 AENSI Publisher All rights reserved. We have conducted a comparative analysis of the destructive activity of the strains of bacteria isolated from the gray forest soil contaminated by stock tank oil produced in the territory of the Republic of Tatarstan, Russia, and the commercial preparation "Devoroil". We have isolated hydrocarbon destructor strains, identified as Pseudomonas aeruginosa, from the gray forest soil contaminated by oil (114 g/kg) produced at Bastryk oil treatment plant (Republic of Tatarstan, Russia). Treatment of oil-contaminated soil with isolated strains allowed reducing the oil content by 62-63% for 3.5 months of remediation under laboratory conditions. Introduction of the commercial preparation "Devoroil" resulted in reducing petroleum products content by 48%. Higher efficiency of the strains isolated compared with that of commercial preparation "Devoroil" allows us to recommend these strains as biological products for soil reclamation in this region.

Keywords

Bioremediation, Indigenous microflora, Oil contamination, PCR Amplification